1.3 GEOGRAPHIC SCOPE

Consistent with the CALFED Programmatic EIS/EIR, the geographic scope of the Water Quality Program encompasses five regions:

- Delta Region
- Bay Region
- Sacramento River Region
- San Joaquin River Region
- Other SWP and CVP Services Areas

Descriptions of these regions are contained in the Glossary at the front of this document. A map showing the location of these regions follows (Figure 3).

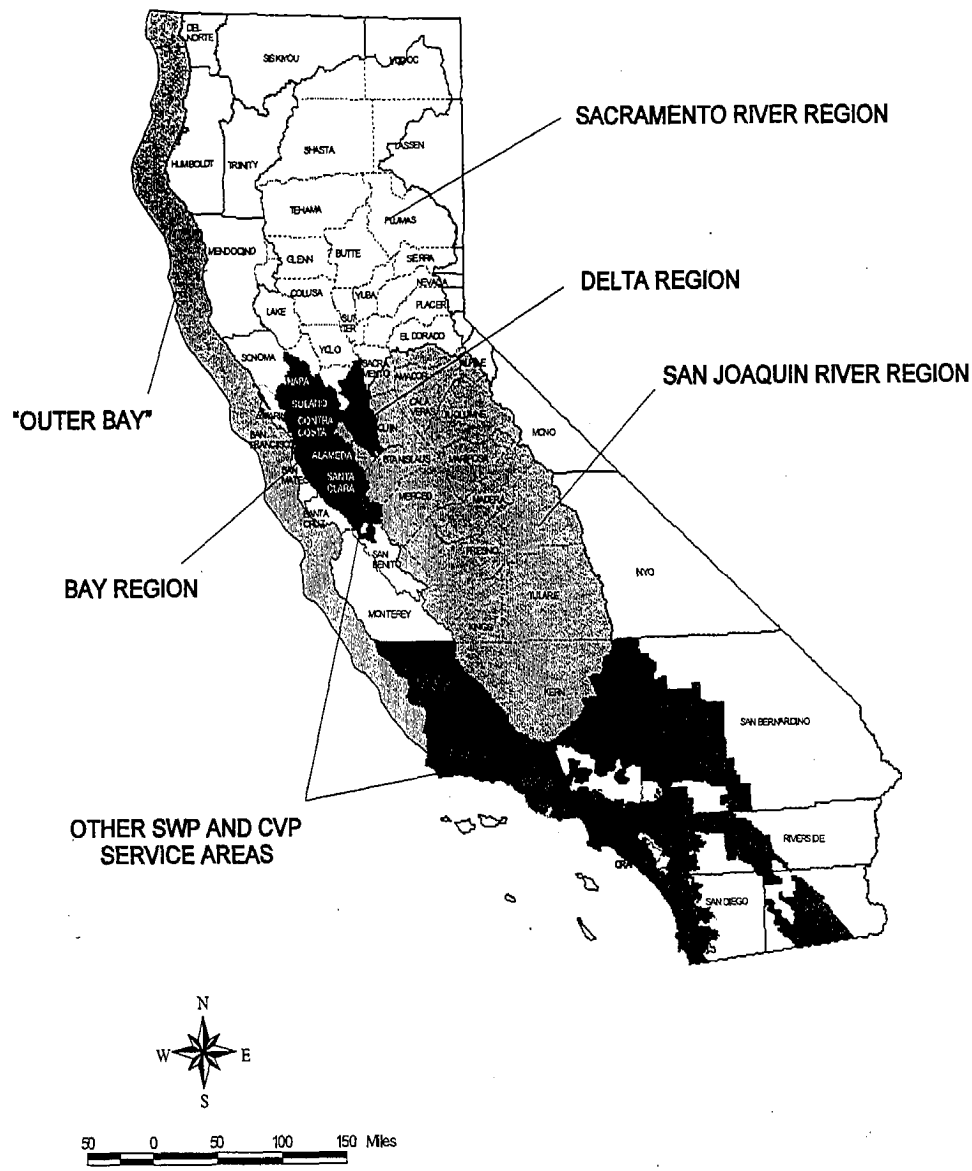
1.4 WATER QUALITY PROGRAM ACTIONS

1.4.1 Introduction

The Water Quality Program has developed programmatic actions to address beneficial use impairments within its geographic scope. Implementing these actions will further the program's goal of providing good quality water for environmental, agricultural, drinking water, industrial, and recreational beneficial uses of water. The water quality impact analysis of the Programmatic EIS/EIR contains a comprehensive analysis of the impacts of CALFED actions on water quality and other components of the CALFED Program.

Determining impairment to a beneficial use is almost always a difficult and complicated matter. For some beneficial uses, such as drinking water use and agricultural water use, concentrations of parameters of concern in ambient water that may affect uses are well quantified. For other beneficial uses, such as ecosystem resources, concentrations of parameters of concern in ambient water that may affect the diverse assemblages of species in the Delta Region are less well understood. As a result, the Program has relied on the technical expertise of a variety of stakeholders representing beneficial uses. These stakeholders have worked with CALFED staff to identify parameters of concern to beneficial uses, the locations of beneficial use impairments, the types of water quality actions needed to address these impairments, and the ways to assess the effectiveness of actions.

The Program has relied on the technical expertise of a variety of stakeholders representing beneficial uses.



NOTE: A description of the five regions is included in the Glossary

Figure 3. Water Quality Program Plan Geographic Scope

CALFED is a cooperative, inter-agency effort involving many state and federal agencies with management or regulatory responsibilities for the Bay-Delta. Each participating agency bears its respective authorities and responsibilities, independent of CALFED efforts. One primary purpose of CALFED is to facilitate the collaborative and cooperative use of these authorities and responsibilities, as well as CALFED resources, to better address the range of problems facing the Bay-Delta.

CALFED does not possess independent, regulatory authority over water quality. However, CALFED does recognize the need for participating agencies to exercise their responsibilities with regard to water quality. CALFED will work with all entities in support of achieving its water quality goals.

CALFED does not possess independent, regulatory authority over water quality.

CALFED's Water Quality Program calls for implementation of a range of tools by participating agencies and interested parties to accomplish its goals. These tools include, but are not limited to, voluntary efforts, use of economic incentives, and exercising regulatory authority by appropriate agencies. The appropriate mix of tools will vary, depending on the problem, existing activities, and where CALFED's Program can add value.

1.4.2 Background

Stakeholders and CALFED staff have developed a list of parameters of concern to beneficial uses (Table 1). The list of parameters of concern may be updated as new information becomes available, consistent with the adaptive management policy of the CALFED Program.

Water quality problems associated with these parameters have been identified by the State in accordance with the CWA. The program used existing information from the CWA Section 303(d) list of impaired water bodies for California to identify the locations of beneficial use impairments associated with parameters of concern. The Section 303(d) list identifies water bodies with impaired beneficial uses, the parameters of concern within each water body that are thought to be responsible for the impairment, and the likely sources of the parameters of concern. The Section 303(d) list contains only parameters of concern for which there are water quality objectives for surface waters. Much of the regulation for drinking water applies to the treated water available for consumption and does not apply to the surface water source. Therefore, the Section 303(d) list does not contain all parameters of concern for drinking water. Appendix B contains a list of the impaired water bodies within the Water Quality Program's geographic focus that were identified by the State in 1998, in accordance with the CWA Section 303(d).

The Section 303(d) list identifies water bodies with impaired beneficial uses, the parameters of concern within each water body that are thought to be responsible for the impairment, and the likely sources of the parameters of concern.

Table 1. Water Quality Parameters of Concern to Beneficial Uses

Metals and Toxic Elements	Organics/ Pesticides	Disinfection By-Product Precursors	Other
Cadmium	Carbofuran	Bromide	DO
Copper	Chlordane[a]	TOC	Salinity (TDS, EC)
Mercury	Chlorpyrifos		Temperature
Selenium	DDT[a]		Turbidity
Zinc	Diazinon		Toxicity of unknown origin[b]
	PCBs[a]		Pathogens
	Toxaphene[a]		Nutrients[c]
	Dioxins[d]		pH (Alkalinity)
	Dioxin-like compounds[d]		Chloride
			Boron
			Sodium adsorption ratio

Notes: EC = Electrical conductivity.
TDS = Total dissolved solids.
TOC = Total organic carbon.

[a] These compounds are no longer used in California. Toxicity from these compounds is remnant from past use.
[b] Toxicity of unknown origin refers to observed aquatic toxicity, the source of which is unknown.
[c] Nutrients includes nitrate, nitrite, ammonia, organic nitrogen, total phosphorus, and soluble reactive phosphorus.
[d] These compounds may be added after review by an appropriate group of stakeholders.

Although the data used to develop the Section 303(d) list of impaired water bodies are subject to criticism (many people note that the data need to be updated), it is the most comprehensive information on beneficial use impairment available at this time. The program recognizes the need for a comprehensive analysis of beneficial use impairments to Delta waters and will use such additional information as it becomes available, consistent with the adaptive management policy of the CALFED Program. The implementation strategy for the Water Quality Program envisions ongoing assessments involving experts, regulatory agencies, and the public to ensure that the best possible understanding is applied to CALFED investment decisions. It is anticipated that a great deal of information on the status of water quality and beneficial use impairments throughout the study area will be compiled by the Comprehensive Monitoring, Assessment, and Research Program (CMARP).

Water quality actions to address beneficial use impairments may include a combination of research, pilot studies, and targeted activities. This approach allows actions to be taken on known water quality problems and sources of those problems, while allowing further research of potential problems and solutions. Table 2 summarizes Water Quality Program actions by region.

Water quality actions to address beneficial use impairments may include a combination of research, pilot studies, and targeted activities.

Table 2. Summary of Water Quality Program Actions by Region

Topic	Region				
	Delta	Bay	Sacramento River	San Joaquin River	Other SWP and CVP Service Areas
Low dissolved oxygen	✔	✔		✔	
Drinking water	✔	✔	✔	✔	✔
Mercury	✔	✔	✔		
Pesticides	✔	✔	✔	✔	
Organochlorine pesticides	✔	✔	✔	✔	
Salinity	✔			✔	
Selenium	✔			✔	
Trace metals	✔	✔	✔	✔	
Turbidity and sedimentation	✔	✔	✔	✔	
Toxicity of unknown origin	✔	✔	✔	✔	

Actions will be adapted over time to ensure the most effective use of resources. The individual indicators of success for each program action, shown in Appendix C, can be used to assess the effectiveness of water quality actions.

Actions will be adapted over time to ensure the most effective use of resources.

The Water Quality Program has identified narrative or numerical water quality targets for each parameter of concern (Appendix D). These targets represent desirable in-stream concentrations of parameters of concern that will be used as indicators of success to determine the effectiveness of water quality actions. However, the degree to which these targets are realized will depend on overall CALFED solutions. Targets may not be fully realized because of competing CALFED solution requirements or because attainment of a target is technically infeasible.

1.5 PRE-FEASIBILITY ANALYSIS

In general, water quality targets are based on the Water Quality Control Plans (WQCPs) (Basin Plans) of the San Francisco Bay and Central Valley Regional Water Quality Control Boards (SFBRWQCB and CVRWQCB), U.S. Environmental Protection Agency (EPA) ambient water quality objectives,

standard agricultural water quality objectives, and target source drinking water quality ranges as defined by technical experts. Other indicators of success may be used in conjunction with these targets on a project-specific basis to determine the effectiveness of actions toward protecting beneficial uses.

Individual programmatic actions may vary in cost, technical feasibility, and other respects that may affect the final choices for implementation. Therefore, actions will be subjected to a pre-feasibility analysis to determine which programmatic actions are most appropriate to be implemented. This analysis has begun and will continue into Phase III of the CALFED Program. Full feasibility analysis in conjunction with project-specific environmental documentation will be performed in Phase III. The process by which actions will be implemented is discussed in Section 12, "Implementation Strategy."

Actions will be subjected to a pre-feasibility analysis to determine which programmatic actions are most appropriate to be implemented.

1.6 ORGANIZATION OF THIS REPORT

This Water Quality Program Plan contains the following sections:

- Section 1, "Introduction," provides an introduction to the CALFED Program and discusses the Water Quality Program, including its purpose and need, vision, geographic scope, and an overview of Water Quality Program actions.
- Section 2, "Low Dissolved Oxygen Concentration and Oxygen-Depleting Substances," addresses sources of oxygen-depleting substances and their effects on water quality.
- Section 3, "Drinking Water," elaborates on strategies to protect and improve source water quality for drinking water production. The section discusses pollutants and their effects on drinking water.
- Section 4, "Mercury," focuses on water quality problems associated with mercury.
- Section 5, "Pesticides," identifies the toxic effects of pesticides currently in use and proposed approaches to address pesticide problems related to water quality.
- Section 6, "Organochlorine Pesticides," presents the residual effects of organochlorine pesticides on water quality.

- Section 7, "Salinity," primarily addresses the effects of salinity on agricultural and drinking water beneficial uses of water.

- Section 8, "Selenium," identifies the sources and effects of selenium related to water quality.

- Section 9, "Trace Metals," addresses the aquatic toxicity of copper, cadmium, and zinc.

- Section 10, "Turbidity and Sedimentation," identifies existing and potential turbidity and sedimentation concerns for water quality.

- Section 11, "Toxicity of Unknown Origin," discusses elements causing toxicity in the Sacramento and San Joaquin River watersheds and the Delta that have not been identified in current evaluations.

- Section 12, "Implementation Strategy," contains an implementation strategy for the Water Quality Program.

Technical appendices follow the report.

For most sections, the discussion is separated into the following topics:

Summary. Provides an overview of the section.

Problem Statement. Presents a concise statement of the problem.

Objective. States the objective of the Water Quality Program for the topic being discussed.

Problem Details. Elaborates on the problem defined in the "Problem Statement."

Approach to Solution. Identifies activities appropriate to the Water Quality Program that can minimize impacts, identifies opportunities for implementation of these activities, and determines data gaps and necessary data-gathering activities. The "Approach to Solution" section includes three subsections: "Priority Actions," "Information Needed," and "Existing Activities." When information is not available or applicable, the subsection heading is not included.